

Consulting Group, Inc.

ISCO CASE STUDY: USE OF HIGH pH ACTIVATED SODIUM PERSULFATE, BTEX SITE, HUNTINGTON HARBOR, CA

INTRODUCTION

This site was an active gas station site located in Huntington Harbor, CA. High pH activation of sodium persulfate using 25% sodium hydroxide was selected for this site because of its treatment effectiveness on gasoline range hydrocarbons. Depth to groundwater was at 30 feet bgs, so no interference with shallow utilities was anticipated.



ISCO EFFECTIVENESS

After 77 days of monitoring, significant reductions were observed in TPH as gas, with levels decreasing by 92% (from 2,500 µg/L to 160 µg/L) after a short-term increase due to contaminant desorption. BTEX compounds decrease by 82% to 100% after 77 days.

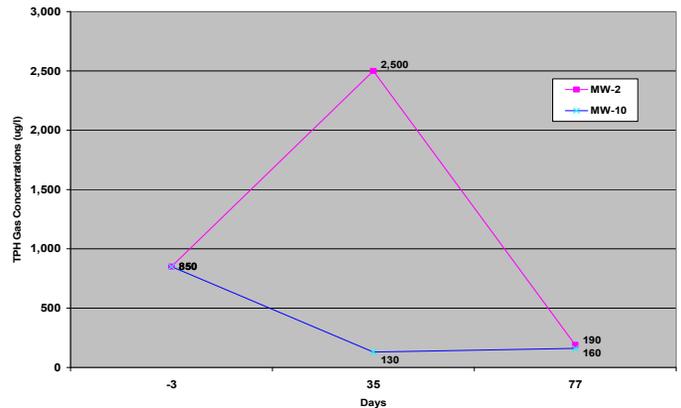
PROJECT BACKGROUND

The Site was an active gasoline station and car wash under the regulatory authority of the Orange County Health Care Agency. Elevated levels of BTEX and TPH gas were present at the site. The treatment area consisted of an area near the USTs which measuring approximately 2,600 square feet in size. The soils at the Site consisted primarily of silts with some cobbles. The depth to groundwater was approximately 20 feet below ground surface (bgs).

ISCO DESIGN

Three existing monitoring wells surrounding the UST source area were used as injections wells for this treatment project. Each well was estimated to have a radius of influence of approximately 15 feet.

Over the course of four days, a total of 2,900 gallons of sodium hydroxide and 1,500 gallons of sodium persulfate were injected into the subsurface. Low injection flow rates of 2 gpm and injection pressures (less than 30 psi) were applied. The injections were performed simultaneously into the three injection wells using dedicated flow meters to record the individual flow rates.



Use of dual phase extraction was performed as a polishing treatment technology after the ISCO injections. Closure of the site was granted by the Orange County Health Care Agency in 2016.

CONTACT INFORMATION

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